



2. Project Narrative

a. Executive Summary

Applicant:	Ohio Aerospace Institute Cleveland, OH www.oai.org
Partner:	State of Ohio
ITA and other Federal collaborators:	USEAC / Cleveland-Akron (Mr. Todd Hiser) ITA/DOC Aerospace Team (Mr. Fred Elliott) Other DoC/ITA experts and local / target market U.S Commercial Service Trade Specialists as recommended
Federal Share:	\$165,704
Match:	\$300,087 cash match and \$170,723 in-kind match
Award Period:	July 1, 2012 – June 30, 2015
Project Exports:	\$90 Million
Post-project Exports:	\$410 Million
Foreign markets targeted:	Europe, Brazil, India
Market size:	Exports to supply Airbus: \$10+ Billion per year and increasing, \$40 Billion market value U.S. Exports to Brazil for Parts & Components: \$3.7Billion in 2008 \$2.5 Billion market value India: \$6 Billion/ year market
U.S. industry:	Aerospace
Project description:	1) Training sessions/seminars – Develop a toolkit by leveraging ITA training sessions and tailoring them to the aerospace community (align topics/content to countries/companies targeted each year). 2) Organize supplier summits/workshops with key industry players and their Tier 1 and 2, match needs with offerings and schedule B-2-Bs. Targeted anchor companies align with trade missions' destinations: Airbus, Embraer, Hindustan Aeronautics Ltd (HAL) 3) Co-organize 3 trade missions (one per year) with DoC/ITA: Paris Air Show in June 2013, trade mission in Brazil in 2014, and Aero India in 2015. Prepare participants beforehand to be able to optimize meetings and announce deals at the shows.

b. Background

Our proposed project addresses several of the priorities outlined by the International Trade Administration. Our activities intend to increase aerospace exports from Ohio-based aerospace small- to mid-size qualifying aerospace manufacturers to Europe (primarily France), Brazil and India by \$90 M over the next 3 years, thereby resulting in 720 high-paying aerospace manufacturing jobs being created and another 1,152 indirect additional jobs. This section provides background information about the targeted markets and why we believe that it is important to take advantage of near-term opportunities in order to secure and maintain the U.S. leading role in the aerospace sector.

This proposed project builds on OAI's 20-year track record of offering valuable services to the aerospace supply chain. OAI has ongoing programs designed to help companies grow their business and technical capacity. The proposed MDCP program will leverage that capacity to network by establishing a partnership with ITA and the State of Ohio to expand its reach.

Current Competitive position of the U.S. aerospace industry and market potential

Aerospace: A Growth Industry

Aerospace is America's leading manufacturing export industry, with \$77.8 Billion in exports in 2010. It contributed \$43.6 Billion in positive trade balance, the largest of any manufacturing sector¹. Aerospace exports support more jobs than any other industry. Aerospace is a strong economic sector: it claimed record sales of \$216.5 Billion in 2010 and enjoyed eight consecutive years of sales growth².

Small- to medium-size firms produce as much as 80% of the content of an aircraft. The U.S. Aerospace Industry employed a total of 624,000 workers in 2010 and indirectly supports more than a million additional jobs (1.6 multiplier factor). Typically, aerospace wages are 65 to 80% higher than the average manufacturing job (\$77,000 vs. \$46,000).

Ohio – the Aerospace State

It is important to explain how Ohio is a key player in the global aerospace supply chain – covering Propulsion & Power, Landing Gear, Wheels & Brakes, Component Supply and Maintenance, Repair and Overhaul (MRO).

Ohio therefore represents a targeted cluster for OAI to focus their efforts to promote international business:

- Ohio is Boeing's second largest supplier (\$4.77 Billion in annual sales)

¹ Source: *Flight Plan 2011*, Analysis of U.S. Aerospace Industry, Office of Transportation and Machinery, International Trade Administration, U.S. Department of Commerce, March 2011

² Source: U.S. Department of Commerce, Bureau of the Census

- 577 Boeing suppliers are located in Ohio.
- 1% of Ohio's Gross State Product is from Boeing
- Ohio is Airbus's top supplier
 - \$4.3 Billion in sales in 2009.
- Ohio is Northrop Grumman's #3 supplier.
- Ohio is ranked 2nd in US aircraft engine and engine part manufacturing.
- Ohio is ranked 6th in US aerospace product and parts manufacturing.
- The world's largest commercial jet engine company, GE Aviation, is in Evendale, Ohio. GE purchases more than \$650M in goods and services from 625 Ohio companies every year.



- More than 1,200 companies in Ohio supply aerospace parts (aerospace, aviation and defense) and employ over 100,000 workers³.

Ohio Aerospace Export Data:

- In 2010, Ohio exported over \$4 billion worth of Aircraft and Spacecraft parts and components
- Ohio exported more than 44 other states, ranking 6th in the total volume of US exports in this Category.
- Over the last five years, Ohio has registered a 91% increase in aerospace exports, the largest increase in the North Central Region.

A growing global business

OAI's proposed activities and target markets were chosen based on a combination of factors that will be further explained in this section. In short, we considered the market growth and projections (Brazil, India), combined with existing relationships (Airbus, Embraer) and the opportunity for expansion or new business.

Aerospace represents a "vital muscle" in our nation's economy – Aerospace manufacturing means making high-end products with a skilled and well-paid workforce. The best way for the United States to grow and prosper it to maintain the lead and proactively seize the global opportunities and needs that are emerging.

We propose adding over 700 aerospace manufacturing jobs by increasing exports by \$90 Million (this represents a 2.1% increase in Ohio aerospace exports over 3 years, directly attributable to the assistance companies are receiving under this MDCP project).

³ Source: Ohio Aerospace and Business Aviation Council

At the global level, demand for civil aviation is growing. It is estimated that airlines will need over 29,000 airplanes valued at \$3.2 Trillion between now and 2029⁴. This estimate is a combination of several forecasts provided by aircraft manufacturers:

- In its Current Market Outlook, Boeing forecasts that the current number of aircraft will nearly double from around 19,400 to more than 39,500 (33,500 will be new airplanes with a value of \$4.0 trillion to be delivered over the next 20 years.
- In their Global Market Forecast 2010-2029, Airbus predicts that new aircraft deliveries will be around 26,000 by 2029 with a market value of \$3.2 trillion.
- The size of the world fleet of 30- to 120-seat category jet aircraft will increase from 4,385 airplanes in 2009 to 7,780 in 2029, a 77% increase. For new aircraft in the same category, Embraer predicts a global demand for 6,875 new jets (2,895 aircraft to be delivered in the first 10 years, and 3,980 between 2020 and 2029).

Why Europe, Brazil and India are targeted

Since GDP growth tends to be correlated with commercial aircraft demand, aircraft manufacturers (Boeing, Airbus, Embraer, Bombardier, and others) use projected GDP growth rate to develop their 20-year plans.

The average growth rate in civil aerospace exports to legacy markets such as Europe has been on the order of 5 to 10% while the growth rate for exports to emerging markets has been around 50%. Data indicate that, over the next 2 decades, emerging market economies are projected to grow 4 times faster than advanced economies.

Dynamic demographics with a younger population means increasing future demand for air travel. In Brazil, the population is 191 million only, 9.9% of the population is over 60 years old and the median age is 28.6. India boasts over 1.1 billion citizens but only 7.4% of the population is over 60 years old and the median age is 24.7. In comparison, in the United States, 17.9% are 60 and older and the median age is 36.5.

This combined with economic growth and an increase in their standards of living creates more demand. Deregulation, rapid urbanization, the rise of a strong middle class and the expansion of low-cost carriers will accelerate growth in air travel.

While the forecast for Europe in GDP growth is lower than for emerging markets, and the economic outlook is grim, it is important to highlight the existing strong relationship that the U.S has with Airbus:

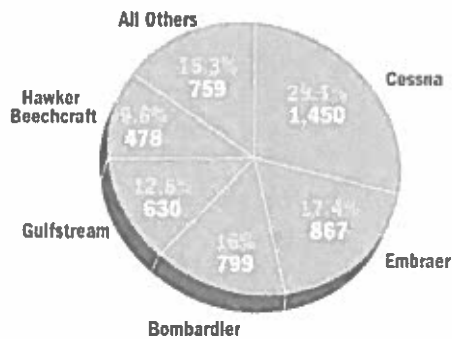
⁴ Source: Aerospace Industry Report 2011, Aerospace Industries Association and the Center for Aviation & Aerospace Leadership at Embry-Riddle Aeronautical University - Worldwide



Airbus spent about \$10 billion last year on goods made in America, 40% of which was procured in Ohio. Given the existing backlog, an opportunity exists for current supply chain partners to increase sales to Airbus. In fact, it is easier for Airbus to do more business with existing suppliers rather than engage and qualify new ones. Therefore, this can be considered an Increase-to-Market approach (as reported in the performance measures).

Business Aviation

Unit Production,
Percentage Market Share 2012-16



Total Five-Year Production: 4,983

All percentages and numbers rounded

Source: Forecast International

Brazil's GDP growth is almost twice that of the United States, and many Asia-Pacific countries like India and China are operating near full capacity. In addition demand in Brazil is fueled by two major upcoming events: the 2014 FIFA World Cup and the 2016 Olympics⁵.

Embraer is a key player in the regional jet market (along with Bombardier) and business jets. Their Market Outlook forecasts that air transport demand will be nearly 2.7 times higher in 2020 than in 2010. It is important to note that 70% of Embraer aerospace parts are imported from the U.S. Embraer is expanding its executive jet lineup to seven with the introduction of the Legacy 450 and Legacy 500. In its

long-term planning, the Brazilian company also has an eye on the long-range segment, where it currently does not compete.

India has a population of 1.1 billion with over 300 million strong middle class citizens with ever-increasing disposable income influencing consumption and travel. India is the 9th biggest aviation market in the world. India is a \$20 billion market that is prime for U.S. supplier participation. India ranks fourth after US, China and Japan in terms of domestic traffic. Domestic airlines in India currently operate 336 aircraft with another 293 to be placed into service by 2014. GDP growth has spurred traffic demand. The civil

⁵ Source: *Flight Plan 2011*, Analysis of U.S. Aerospace Industry, Office of Transportation and Machinery, International Trade Administration, U.S. Department of Commerce, March 2011

aviation sector has recorded annual growth of over 41% in passenger traffic in the last two years.

India's planned procurement of over 1,000 airplanes over the next 20 years is valued at \$ 120 billion or \$ 6 billion every year⁶. Such growth will need to be supported by significant airport infrastructure modernization and expansion and partnerships with foreign suppliers in order to meet the demands. India plans to increase the number of commercial air service airports from 80 today to over 500 in the next decade, investing over \$40 billion in airport infrastructure to help accommodate this projected growth⁷

U.S. aerospace manufacturer's primary foreign competitors are in Europe. However, the economic climate there combined with current interest rates and a weak dollar make U.S aircraft parts and components attractive to foreign customers. According to Airbus CEO Tom Enders, one concern is the financial vulnerability of second- and third-tier suppliers, particularly in Germany. Several smaller firms will be bought by larger foreign investors over time.

Brazil and India will continue to develop their own aerospace industries, and increasingly compete for market share with the United States. Nonetheless, in the foreseeable future, U.S aerospace exports to emerging-market nations are expected to grow, representing significant opportunities for prime and sub-tier suppliers. Participation from small- and medium manufacturers is viewed as critical for their long-term success, even though the United States currently remains the largest market.

Russia and China have also significantly ramped up their investments to build their own aerospace industry. However, we do not anticipate that they represent a real near-term competition or threat to the success of U.S. market share increase in the targeted markets.

U.S. Ohio Aerospace Industry's ability to meet potential market demand

We believe that the Ohio supply base is well-positioned to capture this expanding market. Aerospace is not an easy market to enter, we have established and qualified suppliers who can add capacity quickly. Throughout the State of Ohio, the State and Counties are offering incentives for manufacturers to grow. OAI will work with eligible companies to help accomplish growth financing.

⁶ Source: India Aerospace Market, U.S Commercial Service, New Delhi, India

⁷ Source: *Flight Plan 2011*, Analysis of U.S. Aerospace Industry, Office of Transportation and Machinery, International Trade Administration, U.S. Department of Commerce, March 2011

U.S. industry's after-sales service capability in targeted markets

With increased air travel in Brazil and India comes an opportunity for U.S.-based aerospace suppliers to play a role in the Maintenance, Repair and Overhaul market – The global civil aviation MRO market was estimated to be \$43.6 Billion in 2010 with a Calculated Annual Growth rate (CAGR) of 4.4% predicted for the next decade. Last year, India represented 1% of the Global Air Transport Market, Latin America 5%⁸.

Large U.S. aerospace companies are already looking into setting up joint-ventures locally to service airplanes in Brazil and India due to lower costs. While this does not necessarily help our performance measures, the procurement of certified spare parts from domestic U.S. Ohio-based suppliers, does represent a significant after-market opportunity.

c. Project Description

A project work plan summarizing the activities proposed below is provided at the end of this section on p.10.

1. Seminars/training sessions – 4 per year min. (once per quarter) at OAI or other locations across the State

OAI will work with ITA to develop and/or customize training sessions on international business/exporting specific to the aerospace industry. In addition, OAI and ITA will schedule in-depth market research overviews/seminars by working with in-country industry specialists.

The purpose of those training sessions and seminars is to offer a “toolkit” to all participants.

Topics will include (but are not limited to):

- How to Write an Export Plan
- How to Identify Markets
- Market Briefings for France/Europe, Brazil and India
- Introduction to Foreign Trade Regulations
- Understanding Export Controls
- Financing Your Exports & Getting Paid

⁸ Source: AeroStrategy presentation on Air Transport MRO Outlook, April 12, 2011, at the 2011 Americas Conference



Team Room / Online resources

OAI will develop and maintain an online team room that is accessible to all participants from any of the training sessions or events. As the toolkit gets developed, OAI will make the information electronically available. Industry reports, Q&As, market research data will also be posted.

In addition, this space will be intended to foster communications/exchanges among all the stakeholders, including ITA and State of Ohio's in-country resources. We intend to maintain company profiles in that same online database.

2. Assistance:

One-on-one coaching / counseling sessions

OAI and ITA staff will work closely with qualified supplier workshop participants to help them refine their international business development strategy and get prepared for their trade missions. In addition, OAI, Ohio and ITA will leverage access to ITA industry specialists and Commercial Service officers based in the U.S., Europe, Brazil, and India for specific inquiries.

In addition, OAI will coordinate with the following offices operated by The State of Ohio Department of Development, whose purpose is to promote the export of Ohio goods and services to Europe, Brazil, and India:

- Ohio Europe Office, 4 Rue de la Presse, 1000 Brussels, BELGIUM
Contact: Mr. Brent Decent, Managing Director
- The Ohio Brazil Office, Alameda dos Arapuanes 725/172 – Bloco A
04524-001 Sao Paulo, SP BRAZIL
Contact: Ms. Vania Zulatto, Managing Director
- The Ohio India Office, 217-B (2nd Floor), Okhla Industrial Estate, Phase III
New Delhi 110020, INDIA
Contact: Mr. Prem Behl, Managing Director

Access to Gold Key Service from ITA's Commercial Service

Each trade mission participant can receive help to schedule up to five targeted appointments, an interpreter, transportation, and follow-up assistance. OAI and the State (through their IMAGE program) will offset some of the cost for this valuable service.

3. Supplier workshops

OAI will create an ongoing program by organizing a series of supplier workshops, focusing on Airbus in year 1, Embraer in year 2, and Hindustan Aeronautics Ltd. (HAL) in year 3. Participants will be offered discounted registration rates and exhibits, and



priority for one-on-one appointments with the prime, or their OEMs to discuss business opportunities.

The preparation for the first supplier workshop will promptly begin as soon as the project can get started in order to have the workshop in early December 2012. Preparation will include working closely with Airbus to secure their procurement/supply chain staff to attend the event along with key Tier 1 and 2 suppliers. We will work with them to identify needs and opportunities. Based on this, we can tailor the registration in order to collect potential vendor profiles and match their areas of interest with the right supplier. The day-long workshop will include in the morning briefings and overviews on how to do business with Airbus, from their perspective and the perspective of their suppliers. The afternoon will be dedicated to B-2-B meetings scheduled based on matchmaking between profiles and opportunities. The DOC/ITA and USEAC staff will also be on-hand for one-on-one counseling sessions during the afternoon as well.

OAI has worked with Airbus in the past: we organized their first-ever U.S. supplier workshop in December 2009 at OAI. The event was so successful that we co-organized two additional workshops in the following 18 months, in Dayton and in Columbus. We anticipate that the format will be similar for the subsequent workshops with Embraer and HAL.

4. Trade Missions

OAI plans to schedule trade missions about 6 months following the supplier workshops. The first one will be the Paris Air Show, in June 2013. The following one will be in Brazil, late spring/early summer 2014. The last one will be in India around February 2015. The preparation includes participation in pre-mission briefings/webinars by local industry specialists, as mentioned in the previous proposed tasks.

The trade missions will introduce the participants to pertinent government bodies, end-users and prospective partners whose needs and capabilities are best suited to each US participant's strengths. To that end, OAI staff will work closely with ITA between the supplier workshop and the trade mission (6 months) to identify the right contacts and organize schedules. During the trip, OAI and ITA will help participating companies with prearranged consultations with Senior Commercial Officers from the Countries/Regions visited, provide access to high visibility business networking events with leading industry and government officials (events sponsored by large companies, embassies, AIA, etc.), and prearranged business-to-business meetings.

In addition, OAI will coordinate with in-country State of Ohio resources: Prior to the actual mission dates, dedicated staff of the State's foreign trade offices will interview trade mission participants to prepare a complete profile for each company and to develop a thorough understanding of the exporter's business, including the firm's ideal target customer. Based upon the profile, the offices will complete market research

including industry sector information and target company profiles of prospective agents, distributors, and/or other prospective business partners. The offices will then arrange customized one-on-one appointments with identified target companies for each company that participates in the trade mission.

Logistics Support:

The State's foreign trade offices will work to promote awareness of the trade mission, as a whole, to members of the aerospace community in Europe, India, and Brazil. Appropriate government officials will also be made aware of the trade mission. The offices will work with OAI/Ohio Department of Development to reserve rooms at preferred hotels at group rates to benefit all mission participants. In addition, the trade offices will arrange transportation for the group from the airport to the hotel (upon arrival) and from the hotel to the airport (for departure). They will also prepare an in-country business briefing for the mission participants upon their arrival. The in-country briefings would include presentations from local members of the U.S. Department of Commerce. The offices can recommend and arrange interpreters and drivers, as needed.

5. Metrics, Reporting

OAI will provide quarterly performance measures and reports to ITA – per the reporting requirements.